DETAILED ACTION

Status of the claims

1. In the response to the non-final Office Action, filed 01/31/2008, Applicant cancelled claims 1-91 and added new claims 92-103 which are now pending.

Claim Objections

2. Applicant is advised that should claim 101 be found allowable, claims 102-103 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

New Claim rejections

Claim Rejections - 35 USC § 112

3. Claims 92-103 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention.

The factors considered when determining if the disclosure satisfies the enablement requirement and whether any necessary experimentation is "undue" include, but are not limited to:

1) nature of the invention, 2) state of the prior art, 3) relative skill of those in the art, 4) level of predictability in the art, 5) existence of working examples, 6) breadth of claims, 7) amount of direction or guidance by the inventor, and 8) quantity of experimentation needed to make or use the invention. In re Wands, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988).

The claims are drawn to an isolated polypeptide having chemotactic activity and comprising: (a) SEQ ID NO: 2; or (b) the mature form of the polypeptide of SEQ ID NO: 2, wherein said polypeptide may further comprises a molecule chosen from radioactive labels, fluorescent labels, biotin or cytotoxic agents. Also claimed is a pharmaceutical composition comprising a pharmaceutically acceptable carrier and a polypeptide having chemotactic activity and comprising: (a) SEQ ID NO: 2; or (b) the mature form of the polypeptide of SEQ ID NO: 2, wherein said polypeptide may further comprise a molecule chosen from radioactive labels, fluorescent labels, biotin or cytotoxic agents.

The specification teaches that methods were used to detect the open reading frame (ORF) for a putative protein that might have chemotactic activity (p.33, line 13 to p. 34, line 14) and the methods of isolating that DNA sequence. However, the instant specification does not teach any functional characteristics of the peptide encoded by Seq. Id. No.: 2, apart from the assertion of the Applicant that it might have chemotactic activity. The specification teaches the polypeptide of the Seq. Id. No.: 2 and the fact that it has less than 30 % homology with known proteins in the protein databases (p. 33, lines 21-23) underscores the novelty of the peptide. The requirement that the peptide has chemotactic activity, without specifying what the region of the peptide is necessary

to be preserved, adds to the unpredictability of using an untested novel protein. In order for the polypeptide to be comprised in a pharmaceutical composition, a person of ordinary skill in the art would have to know what conditions may be treated with this particular polypeptide. There is no biological activity, expression pattern, phenotype, disease or condition, ligand, binding partner, or any other specific feature that is disclosed as being associated with the polypeptide of Seq. Id. No.: 2. Absent from the specification is any indication of the nature of the chemotactic activity of the protein or the conditions under which this putative activity is exerted.

Due to the large quantity of experimentation necessary to asses the defining characteristics of the polypeptide and possibly screen the same for activity; the lack of direction/guidance presented in the specification regarding which structural features are required in order to provide activity; the absence of working examples directed to same; the complex nature of the invention; the state of the prior art which establishes the unpredictability of a novel protein to posses the activity claimed based just on the primary structure; undue experimentation would be required of the skilled artisan to make and use the claimed invention in its full scope.

On page 5 of their remarks Applicants argue that the specification is enabling as filed because "...the protein of SEQ ID NO: 2 was identified as being a CXC-chemokine-like protein on the basis of the teachings provided in the as-filed specification at pages 32-44. Additionally, the polypeptide of SEQ ID NO: 2 was further cloned, expressed in mammalian cells and purified. Additionally, the role of chemokines as chemotactic agents with cells, e.g., leukocytes, is well-known in the art and the as-

filed specification clearly provides assays suitable for assessing the activity of the claimed polypeptide."

The arguments were carefully considered but not found persuasive because the examples provided in the specification do not actually characterize the polypeptide, but rather just state that it *can* be characterized. Thus, all the specification presents in this regard is an invitation to experiment, which is clearly not an enabling disclosure. To claim usage in therapy, when the polypeptide is not even produced and documented as a chemokine, would take undue experimentation to determine the function of the chemokine and/or to discover a disease associated with it, and then devise a treatment for this particular disease that might be treated with the pharmaceutical composition comprising the polypeptide of Seq. Id. No. 2.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 92-94 and 98-100 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bates, K. et al. (Database EMBL 'Online! HTG, March 7, 2000, Accession No. AL159154, XP-002231616, "Human DNA sequence from clone RP11-428623 on chromosome 13"-document R5 cited by the Applicants in the IDS filed 01/23/2006), in view of Sibson et al. (WO/94/01548).

Bates et al. disclose the DNA sequence of the human chromosome 13. One of the open reading frames is the open reading frame that codes for the peptide of the instant Application. An alignment of the reverse strand of the sequence that codes for the peptide of Seq. Id. No.: 2 to the partial sequence of chromosome 13 taught by Bates et al., which was presented in the previous Office action, clearly shows the presence of the sequence between the positions 66474-66776. According to the definition in the instant specification, an open reading frame is a DNA sequence containing consecutive coding triplets of nucleotides, not interrupted by a termination codon and that can be potentially translated in a polypeptide, present in human genome. Therefore, the sequence was known as an ORF as proved by alignment and was part of a novel gene, KIAA0916. Bates et al. are silent about using the sequence to obtain a peptide labeled or not.

Sibson et al. disclose that it is generally useful to place a desired DNA sequence into an expression vector, host cell, and express the encoded protein, as well as to raise antibodies to protein encoded by such DNA or to use the proteins for potential therapeutic or commercial value.. See pages 8-13.

It would have been obvious to the person of ordinary skill in the art at the time the invention was made to use the DNA disclosed by Bates et al. to express and then isolate the encoded polypeptide as taught by Sibson et al., in view of Sibson et al.'s suggestion that it would be desirable to do so, as cited above.

On page 7 of the Remarks, Applicants argues that there is no sufficient evidence that a person of ordinary skill in the art would have known to express the sequence identified in the alignment, that the sequence is not identified as an open reading frame and there is no reason why the sequence would have been picked, that was not part of a mRNA sequence and no motivation for a frame shift relative to the entire sequence disclosed in the Office action is offered.

The arguments were carefully considered but not found persuasive because, first of all, the sequence that is complementary to the DNA seq. encoding the polypeptide of the invention is clearly an ORF, according to Applicant's definition presented supra. Second, the state of the art (as evidenced by Sibson et al) clearly is aware of expressing DNA open reading frames sequences as polypeptides. With regard to the motivation to frame shift the sequence, Applicant is reminded that computer programs translating ORFs in all three direct frames or the three reverse frame were long existing and routinely used to analyze newly sequence DNAs prior to the date of invention, as were software programs to identify diverse protein motifs (for instance at the NCBI web site) and tentatively identify potentially useful proteins. As for this case, the DNA from chromosome 13 was sequenced and a person of ordinary skill in the art needed no motivation to pursue something within hers or his technical grasp to discover proteins

with potential therapeutic or commercial value. The person of ordinary skill in the art would have had to choose from a limited number of options, since the number of ORF was a finite quantity. As eloquently expressed by Applicant in their remarks on page 6, lines 26-27, the rational underpinnings to support obviousness can be also complemented by common knowledge and common sense. This is exactly the case for this rejection; a person of ordinary skill in the art is always motivated to pursue the known options within her or his technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense.

7. Claims 95-97 and 101-103 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bates et al. (Database EMBL 'Online! HTG, March 7, 2000, Accession No. AL159154, XP-002231616, "Human DNA sequence from clone RP11-428623 on chromosome 13"-document R5 cited by the Applicants in the IDS filed 01/23/2006), in view of Sibson et al. (WO/94/01548) and in further view of Scherberg N.H. (U.S. Pat. No. 4,383,033).

The considerations of Bates et al. and Sibson et al. were presented supra. They do not expressly teach labeling the proteins obtained.

Scherberg teaches radiolabeled proteins which may be employed advantageously in diagnosis to provide marker compounds for chromatographic detection, immunoprecipitation, and serum clearance testing (abstract and col. 4, lines 20-25).

It would have been obvious for a person of ordinary skill in the art to label the proteins, obtained according to the teachings of Bates et al., Sibson et al., and as taught

by Scherberg with a reasonable expectation of success. The motivation to do so was offered by Scherberg by the teaching of the usefulness of labeled proteins.

On page 8 of the remarks Applicants argue that the teachings of Scherberg do not cure the alleged deficiencies of Bates et al. and Sibson et al. The arguments were carefully considered but not found persuasive because, as presented supra, there are no deficiencies in the teachings of Bates et al. and Sibson et al. With respect to the obviousness of obtaining the polypeptide of Seq. Id. No. 2. Scherberg just presented the motivation of tagging the proteins for useful purposes. Thus, when read in their entirety, the three references make the labeling of the polypeptide obvious.

Conclusion

8. No claims are allowed.

9. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ELLY-GERALD STOICA whose telephone number is (571)272-9941. The examiner can normally be reached on 8:30-17:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Manjunath N. Rao can be reached on (571) 272-0939. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Lorraine Spector/ Ph.D.

Primary Examiner, Art Unit 1647